

**METHODS AND COMPOSITIONS FOR DETECTING POLYNUCLEOTIDE
DUPLEX DAMAGE**

ABSTRACT

[0141] In accordance with the present invention there is provided a new class of sterically demanding metallo-intercalators. These compounds intercalate between bases in a duplex polynucleotide, but only where the bases are not fully complementary, for example, where there is a base-pair mismatch. The compounds are sufficiently sterically demanding that intercalation between bases in fully complementary duplexes does not occur to a significant degree. These mismatch intercalators are useful for detecting DNA and RNA defects, for diagnosing disorders characterized by the presence or increase in DNA and/or RNA defects, and for treating such disorders. Further, the compounds are capable of catalyzing photolytic cleavage of nucleic acids at relatively long wavelengths, and under normal sunlight.

GOVERNMENT USE